

REMARKS

Claims 3-7 are pending in the application. By this Amendment, claims 1, 2 and 8 are canceled without prejudice or disclaimer and claims 3, 4, 5 and 7 are amended.

Applicant expresses his appreciation for the Examiner's indication of allowable subject matter in claims 3-6. Claims 3-5 are amended as independent claims incorporating the features of the base claim and any intervening claims. Claim 6 depends from claim 5. As a result of these amendments, claims 3-6 are allowable over the applied art.

Claim 2 is objected to because of an informality. Claim 2 is canceled and therefore the objection as applied claim 2 is now moot. Withdrawal of the objection is respectfully requested.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by Ueda et al. (U.S. Patent No. 5,383,393). Claims 1 and 2 are canceled without prejudice or disclaimer and therefore the rejection as applied to these claims is now moot. Withdrawal of the rejection is respectfully requested.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as unpatentable over Ueda in view of Schneider et al. (U.S. Patent No. 6,338,298). The rejection is respectfully traversed.

Ueda teaches a multicolor lithographic rotary press that includes a plurality of printing sections, a plurality of register adjusting means, a paper drawing means and a plurality of width adjusting means. The plurality of printing sections is vertically arranged along a traveling line of a paper web. The plurality of register adjusting means corrects register errors. The paper drawing means draws the paper web through the printing sections. The plurality of width adjusting means adjusts the width of the paper web. Each of the printing sections includes at least one divided plate cylinder that has a plurality of divided sections. Each divided section is independently moved in at least one of an axial direction and a circumferential direction. The register adjusting means is mechanically connected to each of the divided plate cylinders in the printing sections. The register adjusting means includes an adjusting mechanism for

actuating the divided sections individually in response to a control unit connected to a sensor for detecting lines and images printed on the paper web by each of the printing sections.

Schneider teaches a rotary printing machine that has blanket cylinders and plate cylinders. The blanket cylinders and the plate cylinders are integrated in pairs into cylinder groups by a mechanical coupling for their joint drive. Each cylinder group is driven by a separate drive motor. Furthermore, Figures 2A and 2B illustrate that either the blanket cylinder or the plate cylinder can be driven by a motor. In the column 7, lines 10-13, it states that, in contrast to Figure 1, the plate cylinder 3 associated with the blanket cylinder 2, rather than the blanket cylinder 2 is driven by a 3-phase motor 5 in the exemplary embodiment according to Figures 2A and 2B. Thus, Schneider teaches that either the blanket cylinder or the plate cylinder can be driven by a motor.

It is respectfully submitted that none of the applied art, alone or in combination, teaches or suggests the features of claim 7. Specifically, it is respectfully submitted that the applied art fails to teach or suggest that each of a first and a second drive means includes a cylinder drive motor coupled to one of a second pair of helical gears on one associated blanket cylinder via an intermediate gear of coaxial arrangement with one associated plate cylinder. Thus, it is respectfully submitted that one of ordinary skill in the art would not be motivated to combine the features of the applied art because such combination would not result in the claimed invention. Therefore, it is respectfully submitted that claim 7 is allowable over the applied art.

Claim 8 is canceled and therefore the rejection as applied to this claim is now moot.

Withdrawal of the rejection is respectfully requested.

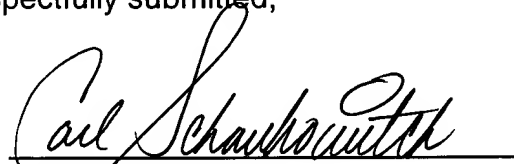
In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

Respectfully submitted,

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Enclosure(s): Appendix I (Marked-up Version of Amended Claims)

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MARKED-UP VERSION OF AMENDED CLAIMS

3. (Amended) ~~The printing press of claim 2~~ A web-fed, multicolor, offset printing press having a series of printing units for printing different color images on a continuous web of paper or like material traveling along a predefined path at a predetermined speed, each printing unit comprising:

(a) a plate cylinder split into a pair of halves for printing a pair of images in juxtaposition transversely of the web, the pair of halves of the plate cylinder being capable of independent displacement both axially and circumferentially of the plate cylinder for registration of the pair of images printed on the web with the other pairs of images printed by the other printing units;

(b) a blanket cylinder in rolling contact with the plate cylinder;

(c) a first pair of helical gears coaxially coupled to opposite ends of the plate cylinder for joint rotation therewith;

(d) a second pair of helical gears coaxially coupled to opposite ends of the blanket cylinder for joint rotation therewith, the second pair of helical gears being each in mesh with one of the first pair of helical gears for joint rotation of the plate cylinder and the blanket cylinder in opposite directions;

(e) axial adjustment means for causing axial displacement of each half of the plate cylinder independently of the other half with a view to fine positioning of each of the pair of images transversely of the web;

(f) circumferential adjustment means coupled to one of the first pair of helical gears for causing circumferential displacement of one of the halves of the plate cylinder relative to the other half by causing axial displacement of said one of the first pair of helical gears, which is in sliding engagement with one of the second pair of helical gears, with a view to fine positioning of one of the pair of images longitudinally of the web; and

(g) drive means drivingly coupled to either of the first and the second pairs of helical gears for jointly driving the plate cylinder and the blanket cylinder in opposite directions at a predetermined speed during printing, and for adjustably varying

the rotational speed of the plate cylinder with respect to the predetermined traveling speed of the web with a view to approximate and fine positionings of the pair of images longitudinally of the web, wherein the plate cylinder has a pair of trunnions coaxially coupled one to each half thereof, and wherein the axial adjustment means comprises a pair of axial adjustments coupled one to each half of the plate cylinder of each printing unit, each axial adjustment comprising:

- (a) frame means;
- (b) an axial adjustment motor mounted to the frame means, the axial adjustment motor being capable of bidirectional rotation;
- (c) a sleeve coaxially and rotatably mounted to one trunnion of the plate cylinder and constrained to axial displacement therewith and hence with one half of the plate cylinder relative to the frame means, the sleeve being driven for bidirectional rotation from the axial adjustment motor; and
- (d) screw thread means acting between the frame means and the sleeve for causing the sleeve to travel axially back and forth with said one plate cylinder half upon bidirectional rotation of the sleeve.

4. ~~(Amended) The printing press of claim 2~~ A web-fed, multicolor, offset printing press having a series of printing units for printing different color images on a continuous web of paper or like material traveling along a predefined path at a predetermined speed, each printing unit comprising:

- (a) a plate cylinder split into a pair of halves for printing a pair of images in juxtaposition transversely of the web, the pair of halves of the plate cylinder being capable of independent displacement both axially and circumferentially of the plate cylinder for registration of the pair of images printed on the web with the other pairs of images printed by the other printing units;
- (b) a blanket cylinder in rolling contact with the plate cylinder;
- (c) a first pair of helical gears coaxially coupled to opposite ends of the plate cylinder for joint rotation therewith;
- (d) a second pair of helical gears coaxially coupled to opposite ends of

the blanket cylinder for joint rotation therewith, the second pair of helical gears being each in mesh with one of the first pair of helical gears for joint rotation of the plate cylinder and the blanket cylinder in opposite directions;

(e) axial adjustment means for causing axial displacement of each half of the plate cylinder independently of the other half with a view to fine positioning of each of the pair of images transversely of the web;

(f) circumferential adjustment means coupled to one of the first pair of helical gears for causing circumferential displacement of one of the halves of the plate cylinder relative to the other half by causing axial displacement of said one of the first pair of helical gears, which is in sliding engagement with one of the second pair of helical gears, with a view to fine positioning of one of the pair of images longitudinally of the web; and

(g) drive means drivingly coupled to either of the first and the second pairs of helical gears for jointly driving the plate cylinder and the blanket cylinder in opposite directions at a predetermined speed during printing, and for adjustably varying the rotational speed of the plate cylinder with respect to the predetermined traveling speed of the web with a view to approximate and fine positionings of the pair of images longitudinally of the web, wherein the plate cylinder has a pair of trunnions coaxially coupled one to each half thereof, and wherein the circumferential adjustment means comprises:

(a) frame means;

(b) a circumferential adjustment motor mounted to the frame means, the circumferential adjustment motor being capable of bidirectional rotation;

(c) a first annular gear nonrotatably mounted to one trunnion of the plate cylinder;

(d) a second annular gear concentrically surrounding the first annular gear and engaged therewith for joint rotation while being free to travel axially relative to the same, one of the first pair of helical gears being concentrically and nonrotatably mounted to the second annular gear;

(e) a sleeve coaxially and rotatably mounted to the second annular

gear and constrained to axial displacement therewith and hence with one of the first pair of helical gears, the sleeve being driven for bidirectional rotation from the circumferential adjustment motor; and

(fvi) screw thread means acting between the frame means and the sleeve for causing the sleeve to travel axially back and forth with the second annular gear, and hence with said one of the first pair of helical gears, upon bidirectional rotation of the sleeve, said one helical gear on axial displacement being displaced circumferentially with one half of the plate cylinder by virtue of its engagement with one of the second pair of helical gears on the opposite ends of the blanket cylinder.

5. (Amended) ~~The printing press of claim 2~~ A web-fed, multicolor, offset printing press having a series of printing units for printing different color images on a continuous web of paper or like material traveling along a predefined path at a predetermined speed, each printing unit comprising:

(a) a plate cylinder split into a pair of halves for printing a pair of images in juxtaposition transversely of the web, the pair of halves of the plate cylinder being capable of independent displacement both axially and circumferentially of the plate cylinder for registration of the pair of images printed on the web with the other pairs of images printed by the other printing units;

(b) a blanket cylinder in rolling contact with the plate cylinder;

(c) a first pair of helical gears coaxially coupled to opposite ends of the plate cylinder for joint rotation therewith;

(d) a second pair of helical gears coaxially coupled to opposite ends of the blanket cylinder for joint rotation therewith, the second pair of helical gears being each in mesh with one of the first pair of helical gears for joint rotation of the plate cylinder and the blanket cylinder in opposite directions;

(e) axial adjustment means for causing axial displacement of each half of the plate cylinder independently of the other half with a view to fine positioning of each of the pair of images transversely of the web;

(f) circumferential adjustment means coupled to one of the first pair of

helical gears for causing circumferential displacement of one of the halves of the plate cylinder relative to the other half by causing axial displacement of said one of the first pair of helical gears, which is in sliding engagement with one of the second pair of helical gears, with a view to fine positioning of one of the pair of images longitudinally of the web; and

(g) drive means drivingly coupled to either of the first and the second pairs of helical gears for jointly driving the plate cylinder and the blanket cylinder in opposite directions at a predetermined speed during printing, and for adjustably varying the rotational speed of the plate cylinder with respect to the predetermined traveling speed of the web with a view to approximate and fine positionings of the pair of images longitudinally of the web, wherein the plate cylinder has a pair of trunnions coaxially coupled one to each half thereof, and wherein the axial adjustment means comprises a pair of axial adjustments coupled one to each half of the plate cylinder of each printing unit, each axial adjustment comprising:

(a) frame means

(b) an axial adjustment motor mounted to the frame means, the axial adjustment motor being capable of bidirectional rotation;

(c) a first sleeve mounted fast to the frame means, the first sleeve being threaded internally;

(d) a threaded rod extending through the first sleeve in threaded engagement therewith, the threaded rod being driven for bidirectional rotation from the axial adjustment motor and, on rotation, undergoing axial displacement by virtue of its threaded engagement with the first sleeve; and

(e) a second sleeve coaxially secured to one of the trunnions and coaxially coupled to the threaded rod so as to permit rotation of the latter while being constrained to joint axial displacement with the threaded rod.

7. (Amended) A web-fed, multicolor, offset perfecting printing press having a series of printing units for printing different color images on both sides of a continuous web of paper or like material traveling along a predefined path at a predetermined

speed, each printing unit comprising:

(a) a pair of plate cylinders each split into a pair of halves for printing a pair of images in juxtaposition transversely of the web, the pair of halves of each plate cylinder being capable of independent displacement both axially and circumferentially of the plate cylinder for registration of the pair of images printed on one side of the web with the other pairs of images printed on the same side of the web by the other printing units;

(b) a pair of blanket cylinders in rolling contact one with each plate cylinder, the pair of blanket cylinders being held against each other via the web being printed upon;

(c) a first pair of helical gears coaxially coupled to opposite ends of each plate cylinder for joint rotation therewith;

(d) a second pair of helical gears coaxially coupled to opposite ends of each blanket cylinder for joint rotation therewith, the second pair of helical gears on each blanket cylinder being each in mesh with one of the first pair of helical gears on one plate cylinder for joint rotation of the plate cylinder and the blanket cylinder in opposite directions;

(e) axial adjustment means for causing axial displacement of each half of each plate cylinder independently of the other half thereof with a view to fine positioning of each of the pair of images transversely of the web;

(f) circumferential adjustment means coupled to one of the first pair of helical gears on each plate cylinder for causing circumferential displacement of one of the halves of the plate cylinder relative to the other half thereof by causing axial displacement of said one of the first pair of helical gears in sliding engagement with one of the second pair of helical gears on one associated blanket cylinder, with a view to fine positioning of one of the pair of images longitudinally of the web;

(g) first drive means drivingly coupled to either of the first and the second pairs of helical gears on one plate cylinder and one blanket cylinder for jointly driving said one plate cylinder and said one blanket cylinder in opposite directions at a predetermined speed during printing, and for adjustably varying the rotational speed of

said one plate cylinder with respect to the predetermined traveling speed of the web with a view to approximate and fine positionings of the pair of images longitudinally of the web; and

(h) second drive means drivingly coupled to either of the first and the second pairs of helical gears on the other plate cylinder and the other blanket cylinder for jointly driving said other plate cylinder and said other blanket cylinder in opposite directions at the predetermined speed during printing, and for adjustably varying the rotational speed of said other plate cylinder with respect to the predetermined traveling speed of the web with a view to approximate and fine positionings of the pair of images longitudinally of the web, wherein each of the first and the second drive means includes a cylinder drive motor coupled to one of the second pair of helical gears on one associated blanket cylinder via an intermediate gear of coaxial arrangement with one associated plate cylinder.